



US006411565B1

(12) **United States Patent**
Sirmalis et al.

(10) **Patent No.:** **US 6,411,565 B1**
(45) **Date of Patent:** **Jun. 25, 2002**

(54) **MULTI-USE TORPEDO DISPENSED SINGLE
MODE OPTICAL FIBER**

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(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/853,936**

(22) Filed: **May 11, 2001**

(51) Int. Cl.⁷ **H04B 11/00; F42B 19/01**

(52) U.S. Cl. **367/131; 367/129; 114/21.1**

(58) Field of Search 367/129, 130,
367/131, 153, 154, 149; 340/850; 114/242,
312, 316, 21.1, 20.1

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(57) **ABSTRACT**

A system is provided in which a torpedo is launched from a submarine and pays out an optical fiber as it moves away from the submarine towards a target. The optical fiber is attached to the submarine and provides an optical communications link between the submarine and the torpedo. In addition to carrying communications between the submarine and torpedo, the optical fiber includes optical acoustic sensors. The optical fiber serves as a forward deployed acoustic array to gather target bearing and range data that is processed at the submarine. With the array deployed directly within the engagement arena, the submarine can more accurately analyze the acoustic environment to better guide the torpedo through countermeasure avoidance and to target acquisition. The optical fiber pays out behind the torpedo at the same rate that the torpedo moves away from the submarine. Thus, the optical fiber does not move in relation to the surrounding medium and flow noises experienced in conventional towed arrays are virtually eliminated from the array of optical acoustic sensors.

10 Claims, 1 Drawing Sheet

